

## CLAIMS

1           1.     A method in a computer system for determining a diameter of a broadcast  
2 channel, the broadcast channel having computers, each computer connected to at least three  
3 neighbor computers, the method comprising:

4                   receiving a message from a neighbor computer;

5                   identifying a distance traveled from the received message;

6                   setting an estimated diameter based on the identified distance traveled amount;

7                   incrementing the distance traveled in the message; and

8                   sending the message with the incremented distance traveled to a neighbor  
9 computer.

1           2.     The method of claim 1 wherein the setting of the estimated diameter sets the  
2 estimated diameter to the distance traveled whenever the identified distance traveled is  
3 greater than the current estimated diameter.

1           3.     The method of claim 1 wherein the computers of the broadcast channel form an  
2 m-regular and m-connected graph.

1           4.     The method of claim 3 wherein m is 4.

1           5.     The method of claim 1 wherein each computer is connected to its neighbor  
2 computers via a point-to-point connections.

1           6.     The method of claim 1 including when the estimated diameter is set,  
2 broadcasting a message indicating the new estimated diameter.

1           7.     The method of claim 1 including:

2                   receiving a message indicating a new estimated diameter; and

3           when the new estimated diameter is greater than the currently estimated  
4   diameter, setting the estimated diameter to the new estimated diameter.

1           8.     The method of claim 1 including:

2           receiving a message indicated to reset the estimated diameter to a new  
3   estimated diameter; and

4           setting the estimated diameter to the new estimated diameter.

1           9.     A method of disconnecting a first computer from a second computer, the first  
2   computer and the second computer being connected to a broadcast channel, the method  
3   comprising:

4           when the first computer decides to disconnect from the second computer, the  
5   first computer sends a disconnect message to the second computer; and

6           when the second computer receives the disconnect message from the first  
7   computer, the second computer broadcasts a connection port search message to find a third  
8   computer to which it can connect.

1           10.    The method of claim 9 wherein the second computer receives a port connection  
2   message indicating that the third computer is proposing that the third computer and the  
3   second computer connect.

1           11.    The method of claim 9 wherein the first computer disconnects from the second  
2   computer after sending the disconnect message.

1           12.    The method of claim 9 wherein the broadcast channel is implemented using the  
2   Internet.

1           13.    The method of claim 9 wherein each computer connected to the broadcast  
2   channel is connected to at least three other computers.

1           14.    The method of claim 13 wherein the computers and their connections form an  
2 m-regular graph.

1           15.    The method of claim 9 wherein the first computer and second computer are  
2 connected via a TCP/IP connection.

1           16.    A method for disconnecting a first computer from a second computer, the  
2 computers being connected to a broadcast channel, the method comprising:

3                   connecting the first computer to a second computer;

4                   attempting to send a message from the first computer to the second computer;

5 and

6                   when the attempt to send the message is unsuccessful, broadcasting from the  
7 first computer a connection port search message indicating that the first computer needs a  
8 connection.

1           17.    The method of claim 16 including:

2                   when a third computer receives the connection port search message and the  
3 third computer also needs a connection, sending a message from the third computer to the  
4 first computer proposing that the first computer and third computer connect.

1           18.    The method of claim 17 including:

2                   when the first computer receives the message proposing that the first computer  
3 and third computer connect, sending from the first computer to the third computer a message  
4 indicating that the first computer accepts the proposal to connect the first computer to the  
5 third computer.

1           19.    The method of claim 16 wherein each computer connected to the broadcast  
2 channel is connected to at least three other computers.

1           20.    The method of claim 19 wherein the computers and connections of the  
2 broadcast channel form an m-regular graph.

1           21.    The method of claim 19 wherein the computers and connections of the  
2 broadcast channel form an m-connected graph.

1           22.    The method of claim 16 wherein the broadcasting includes sending the  
2 message to each computer to which the first computer is connected.

1           23.    A computer-readable medium containing instructions for controlling  
2 disconnecting of a computer from another computer, the computer and the other computer  
3 being connected to a broadcast channel, comprising:

4                   a component that, when the computer decides to disconnect from the other  
5 computer, the computer sends a disconnect message to the other computer; and

6                   a component that, when the computer receives a disconnect message from  
7 another computer, the computer broadcasts a connection port search message to find a  
8 computer to which it can connect.

1           24.    The computer-readable medium of claim 23 including:

2                   a component that, when the computer receives a connection port search  
3 message and the computer needs to connect to another computer, sends to the computer that  
4 sent the connection port search message a port connection message indicating that the  
5 computer is proposing that the computer that sent the connection port search message  
6 connect to the computer.

1           25.    The computer-readable medium of claim 24 including:

2                   a component that, when the computer receives a port connection message,  
3 connecting to the computer that sent the port connection message.

1           26.    The computer-readable medium of claim 23 wherein each computer connected  
2   to the broadcast channel is connected to at least three other computers.

1           27.    The computer-readable medium of claim 23 wherein the computers and their  
2   connections form an m-regular graph.

1           28.    The computer-readable medium of claim 23 wherein the computers are  
2   connected via a TCP/IP connection.

1           29.    The computer-readable medium of claim 23 wherein the computers that are  
2   connected to the broadcast channel are peers.

1           30.    The computer-readable medium of claim 23 wherein the broadcast channel is  
2   implemented using the Internet.